Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:

Carrier Current Systems, Including Broadband Over Power Line Systems	)	ET Docket No. 03-104
Amendment of Part 15 Regarding New Requirements and Measurement Guidelines For Access Broadband Over Power Line Systems	)	ET Docket No. 04-37

To: The Commission

REPLY COMMENTS OF AMEREN ENERGY COMMUNICATONS INC.

/S/ Raymond A. Kowalski
Raymond A. Kowalski
Troutman Sanders LLP
401 Ninth Street, N.W., Suite 1000
Washington, DC 20004-2134
Tel. 202-274-2927
Fax 202-274-2994
E-mail raymond.kowalski@troutmansanders.com

Attorney for Ameren Energy Communications, Inc.

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SUMMARY

Ameren Energy Communications, Inc. ("AEC") is presently engaged in a test of Access BPL technology. Earlier this year, FCC personnel visited AEC's test area, specifically looking for BPL signals in the HF spectrum. None was observed.

NTIA filed in this proceeding a two-volume report on its studies of the interference potential of BPL to federal government communications in the 1.7 – 80 MHz range as well as formal comments and a technical appendix. NTIA concluded in its report that several adaptive interference mitigation techniques could satisfactorily protect even its most sensitive and most susceptible systems. NTIA suggested other measures as well, which it elaborated upon in its later-filed comments, including local registration, but these measures are administrative, not technical, and, in AEC's view, would not provide a marginal improvement in the prevention of harmful interference that would outweigh the substantial burden and impact on broadband competition that they would impose.

NTIA did not recommend that the Commission halt or even delay action in this docket. Rather, NTIA recommended that the Commission's rulemaking proceed without delay. AEC wholeheartedly agrees and urges the Commission to promptly resolve this rulemaking.

The Commission should bear in mind its nascent industries policy and maintain a light regulatory touch in setting the fundamental ground rules for this new broadband technology.

COMMENTS

Ameren Energy Communications Inc. ("AEC"), an affiliate of Ameren Corporation, by its counsel and pursuant to Section 1.415 of the Commission's Rules, submits these reply comments in response to comments filed by various parties in the above-captioned Notice of Proposed Rule Making.

Pursuant to experimental license WC2XXK, granted in June, 2002, AEC has been operating an experimental BPL system in Cape Girardeau, Missouri. The experience that has been and is being gained through the operation of this system has enabled AEC to prepare these reply comments from an empirical, not merely theoretical, perspective.

One particular experience stands out: AEC has not received a single complaint of RF interference in the two years of the system's operation. In April of this year, AEC was informed that Commission personnel were onsite in Cape Girardeau conducting field tests and looking for interference of the sort described by commenters in this proceeding. At the conclusion of these tests, AEC was informed by the Commission that no BPL signals were observed in the high frequency spectrum.

Reply Comments Regarding Interference Issues

The National Telecommunications and Information Administration ("NTIA") filed a two-volume report in this proceeding entitled *Potential Interference from Broadband over Power Line (BPL) Systems to Federal Government Radio Communications at 1.7 – 80 MHz,* NTIA Report 04-413 ("NTIA report" or "report"). Because this report reflects the government's concerns about potential interference to government radio systems, the report has been seized upon by many commenters who

oppose BPL on technical grounds. It is important to note, however, that the NTIA report is limited in the bands that it covers as well as to federal government's radio communications. In other words, the NTIA report is not support for every party who opposes BPL on technical grounds. It is significant to note as well that, despite its extensive studies and analysis, NTIA has not recommended that the Commission halt or even delay its consideration of the proposed rule modifications. The NTIA report validates the ability of BPL to deliver an important service without interference to RF users by the appropriate use of interference-mitigating technology.

NTIA also filed formal comments, accompanied by a technical appendix ("NTIA comments" or "comments"), that NTIA describes as addressing the issues that are the subject of its ongoing studies and that will be the subject of its next report.

AEC finds that many of its own technical conclusions and recommendations regarding BPL emissions and methods of measurement are in close agreement with NTIA's initial technical findings. AEC agrees with many of the NTIA report's recommendations regarding the method of measurement, choice of site, and mitigation alternatives for the operation of BPL.

In Section 7 of the NTIA report, AEC sees that NTIA agrees with it and other commenters in this proceeding that the use of the loop antenna for measuring the strength of the electric field below 30 MHz is inappropriate near the power lines. AEC has always used the rod antenna for electric field measurements and we therefore strongly support the NTIA recommendations of the same.

In the same section of the report, AEC finds the recommendation for *a uniform measurement distance of 10 m from the power line* to be in complete agreement with its

own recommendation to the Commission. In this regard, AEC would remind the Commission of its two additional recommendations related to the use of the 10 m distance: (a) an extrapolation factor of 40 dB/decade for measurements at 10 m or farther from the line; and (b) zero dB/decade for measurements closer than 10 m from the line.

AEC agrees, in general terms, with the NTIA report's findings concerning the field variability with respect to observation (measurement) height. In its own comments, AEC supplied results from a power line model showing that the field variation at different heights is oscillatory, and that the field observed, say, at 10 m above ground could be greater than the field observed at 1 or 2 m above ground. AEC's model showed that the *maximum* field seen from zero to 15 m above ground *at any distance from the BPL device along the line* is at most 3.5 dB greater than the *maximum* field seen 1 m above ground *at any distance* from the BPL device (along the line). AEC's theoretical conclusion matches closely the NTIA report's experimental conclusion *that the field at 10 m above ground could be 3 to 15 dB greater than the field at 2 m above ground* – presuming that the 3 dB difference refers to the maximum fields observed at 2 and 10 m above ground.

AEC has serious reservations, however, about the report's recommendation in Section 7 for performing measurements at a 10 m height. AEC believes that the use of an antenna mounted on a telescopic pole to reach the 10 m height may result in false readings because the proposed antenna arrangement has sufficiently large dimension to cause near-field interaction with the line. Specifically, the near fields of the proposed antenna arrangement may approach the line conductors and, with the antenna being

already in the line near-fields, this may result in resonance between line and antenna giving a false reading (most likely a higher than actual field value).

In addition, AEC cautions that the alternative proposed by NTIA of using the utility "bucket" vehicle to reach the desired height may pose practical problems including, but not limited to, (a) inaccessibility and lack of maneuverability for obtaining the appropriate distance from the line, (b) technical difficulty in loading equipment and *untrained persons* onto the bucket, and (c) the bucket's hoisting arm may interfere significantly with measurements (acting as an antenna).

AEC believes that the fields measured at greater heights are still reactive (not radiating) near fields and they are not likely to interfere with other RF users. Therefore, AEC supports (a) measurements at one uniform height, and (b) no more than a 3.5 dB correction factor to account for other heights. AEC urges the Commission to allow the same as an option.

Section 5 and Appendix D of the NTIA report present results from measurements conducted at three BPL sites serving customers. The results show different behavior aspects of the fields resulting from distinct types of BPL systems, several of which are consistent with the predictions of AEC's numerical models (see discussion bellow). While these results are valuable to help predict or determine interference, the report *did not* provide the results in a form suitable to make comparisons between systems nor for contrasting the results with proposed emissions limits.

Specifically, field characterization was done in terms of *antenna power* (dBmW) rather than in terms of *electric (or magnetic) field strength* (dBuV/m). In other words, the report told us how much *power* some specific antennas received at various points

around the BPL device and power lines; but it did not tell us how much the actual *field strength* was. Consequently, this is only a narrow and subjective characterization of the field concerning the users of the specific antenna types (assuming that this is what they represented, as, for example, the whip antennas used by mobile units). It is well known, however, that the power an antenna receives at a certain frequency band depends on the directivity and the gain of the antenna as well as the strength of the radiated field. Therefore, two different antennas with significantly different gains seeing the same field could record significantly different powers proportional to their gains.

Presumably, NTIA reported BPL emissions that were distinguishable from ambient noise by its antennas, *i.e.*, emissions that were 5 dB or more above the noise floor, according to the report. However, the principal question of the Commission's rule making inquiry was to assess the sufficiency of the proposed rules *as they apply to the strength of the electric field in absolute terms, not relative to noise*.

NTIA should have applied the antenna factors and provided the actual value of the electric field. This would have permitted a reader of the report to assess the radiation and emission performance of the BPL systems that were tested in accordance with the guidelines and emissions limits set forth in Part 15 of the Commission's rules. Part 15 requires test results to be reported in terms of field strength, not in terms of the power of an arbitrary antenna. AEC believes the above to be a serious limitation of the report. (AEC can only guess from its own experience that the strength of the electric field corresponding to the presented data was very small and below the Part 15 limits, a fact corroborated by the small power reading of the antennas and the inability of the loop antennas to sense a magnetic field above the noise floor in most instances.)

Notwithstanding the above-mentioned limitation, NTIA's emission measurements do tend to verify AEC's numerical model described in AEC's comments. In reference to the behavior of the fields along the line, Section 5.3.3 of the NTIA report states that the field does not measurably decay away from the BPL device. Indeed, measurement results depicted in fig. D-11 through D-14 show the fields increasing as the observer moves away from "device C" parallel to the line. However, as the measurement locations are moving *away* from "device C," they are *approaching* "device B," another BPL device in the same line segment. Therefore, it cannot be convincingly inferred that the general tendency of the fields is to be constant or to increase away from the BPL device.

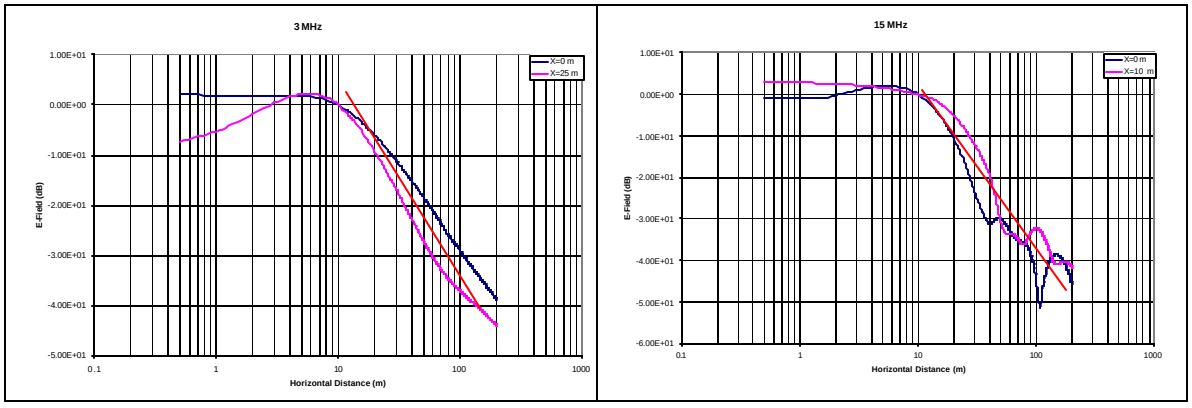
Theoretical results shown in AEC's comments, as well as theoretical results outlined in Section 5.4.2 - Modeling of the Power Line - of the NTIA report, suggest the following general law regarding the behavior of the fields parallel to the line resulting from a *single* BPL device:

> 1. The field *magnitude* distribution is oscillatory with a spatial period of ½ wavelength, because of the presence of a standing wave on the line.
>
> 2. The spatial envelope of the field (the imaginary line encompassing the local maxima) generally decays monotonically away from the BPL device. Discontinuities at the end of a line segment generally become secondary emission sources causing the envelope of the field to begin increasing near the end of the line segment. When a line segment has more than one BPL device – as did the power line measured by NTIA – a superposition of the fields is expected to produce patterns equivalent to some of those shown in Section 5 and Appendix D of the report.

In reference to the behavior of the fields away from the line, the results presented in Section 5.3.4 of the NTIA report confirm the theoretical characterization of the line fields by AEC, which was contained in its comments. NTIA characterizes the fields several hundred feet around the line as near fields. The report states that the effects

of both the magnetic and the electric field decrease away from the line (but not always monotonically). Fig. D-27, D-29, D-31 and D-33 are some of the figures in the report that collaborate the above conclusions. These figures show that the fields away from the line have an average decay rate of 40 dB/decade. This is in complete agreement with AEC's own theoretical calculations summarized in Fig. 1 below which is extracted, for the Commission's convenience, from AEC's comments. It depicts the theoretical field decay away from the line at different frequencies. This figure can be compared with the above figures of the NTIA report and, especially, with fig. D-33 to verify the satisfactory agreement between the experimental and theoretical results.

Therefore, AEC believes that the confirmed characteristic of the fields near the line supports the case for assuming a 40 dB/decade decay rate of the field away from the line and urges the Commission to adopt the same as a standard extrapolation factor.



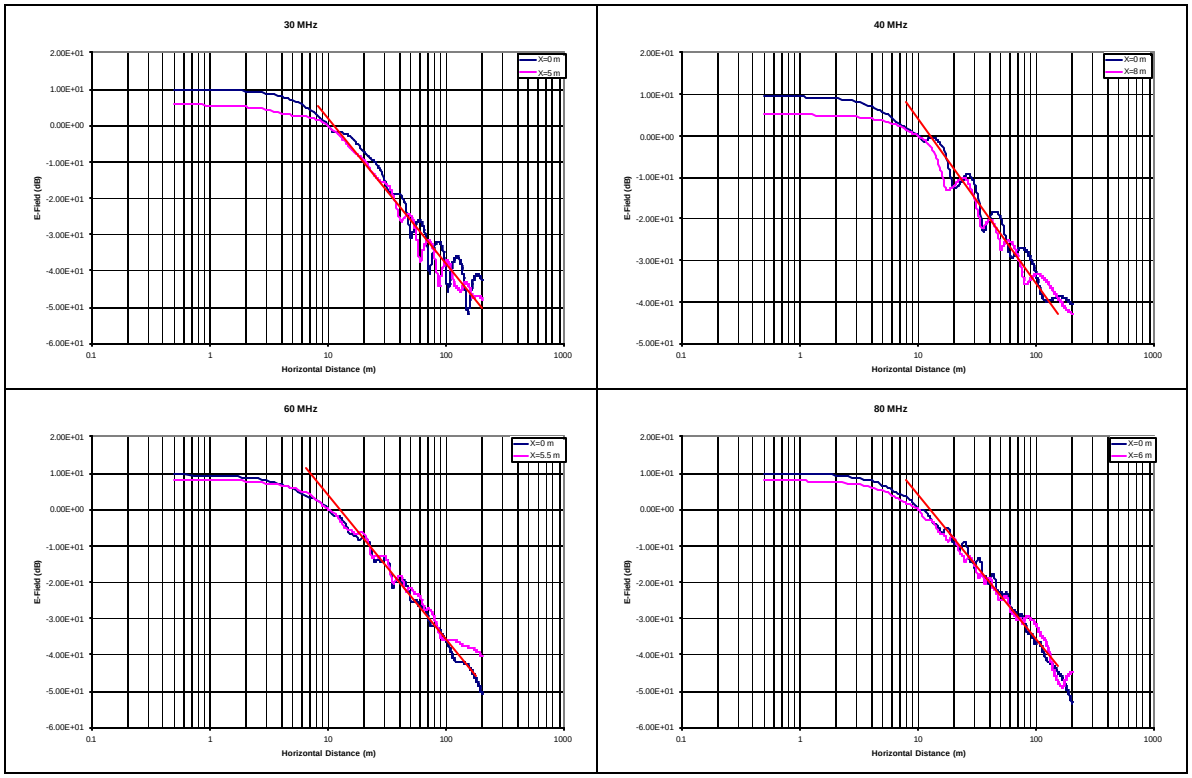


Fig. 1. Theoretical electric field decay away from the line at different frequencies. The straight linear segment corresponds to the 40 dB/decade rate.

AEC does not agree with the comments and recommendations in Section 7.10 of the NTIA report. The measurement procedure proposed by that section requiring progressively lowering the modem power levels until compliance is achieved fails to acknowledge any other means by which to mitigate unwanted emissions (e.g. selective attenuation of offending frequencies). The incorporation of adaptive interference mitigation technology into the modem algorithms, as proposed by the Commission and supported by NTIA in the report, will provide additional flexibility to the operator to configure the system for optimum performance and compliance with emissions limits. AEC therefore recommends that the Commission clarify that adjusting the modem output

power is only one of several suitable means for tuning the system parameters to achieve compliance with Part 15.

AEC agrees with many of the technical recommendations in Section 8 of the NTIA report aimed at improving the performance of BPL systems and ensuring their interference-free operation. For instance, AEC agrees with the recommendations in Section 8.4 emphasizing the effectiveness of differential signal injection in decreasing far-field effects (as well as near fields to some extent). AEC is conducting its own research to investigate the effectiveness of various signal injection patterns with respect to signal reach and near- and far-field effects. The injection schemes currently used by AEC utilize differential mode signal injection and avoid the creation of ground paths.

AEC sees the recommendations of Sections 8.3, 8.5 and 8.7 of the NTIA report regarding frequency agility, signal counter-modulation at terminations and carrier choice to minimize emissions, as important directions for further research and development. AEC agrees with Section 8.6 that the "one active device per area" communication protocol may be an effective way to decrease any cumulative effect of many BPL devices located in the same area. As AEC has stated previously in these proceedings, the above recommendations, as well as other particular technology capabilities not mentioned here, can provide reasonable assurances that BPL can operate within the emissions limits and not increase ambient noise or interfere with licensed services. AEC believes that the recommendation of the Commission for the development and incorporation into the communication algorithms of adaptive interference mitigation technology encompasses most of the above recommendations without over-prescribing technological solutions.

Reply Comments Regarding the Database Concept

A. A Licensee Database

Section 8.9 of the NTIA report states that NTIA will explore the possibility of making parts of the NTIA database available via the Internet to appropriate persons to consult in planning BPL installations. AEC believes that it is unlikely that such access to sensitive government information will be granted. The Commission should not craft a rule that anticipates such access to NTIA's database. Furthermore, the offer of such access implies an obligation on the part of BPL operators to consult the database prior to configuring their networks. This would be an unduly burdensome obligation that is not borne by any other broadband service provider, despite the fact that cable modems and DSL modems are similarly subject to Part 15 of the Commission's rules.

B. A BPL Database

AEC opposes the recommendation of Section 8.10 of the NTIA report to create a publicly accessible database containing the records of BPL deployment and planning information. Similarly, AEC disagrees with those commenters who would accept a database requirement if it were administered and maintained by a trusted third party.

BPL is not an intentional radio transmitter and does not require a spectrum license. The frequencies BPL uses, the location of the BPL modems, their power output and other system parameters constitute trade secrets, which, if made public, could compromise the competitive ability of the company. This is so because the power line is an adverse multi-path environment. Generic communication algorithms and modulation schemes *do not* suffice to achieve optimum communications conditions for all systems. Additional ad-hoc operations are necessary to fine-tune and optimize the system

performance, including, but not limited to, shaping the BPL frequency spectrum, selecting modem location and setting modem power output, all of which constitute information that should remain proprietary and within the company.

Section 8.10 offers no technical arguments why such a database is necessary or indispensable. It is little more than a public relations gesture to those who oppose BPL under any circumstances. AEC believes that the proposed database is a measure that is not based on empirical fact, but rather on an irrational fear that power lines will become rampant and uncontrolled RF polluters. The Commission's adaptive interference mitigation requirements, by definition, will prevent this development. Imposing additional, unnecessary and cumbersome regulations at the onset of the BPL industry's emergence will place the industry at a competitive disadvantage and diminish its promise of wider broadband availability at more competitive prices.

In its comments, NTIA expands on the recommendation contained in its report for creation of a database. The chief justification, NTIA states, is "…to preserve the high degree of regulatory certainty enjoyed by licensed radio operators…" (NTIA comments, Section IV). NTIA hopes to achieve this certainty in two ways: first, NTIA would impose on the BPL operator the burden of prior frequency coordination with radio operations at the BPL vicinity; second, NTIA would force BPL operators to share, in a publicly accessible database, critical trade information, so that potentially affected radio operators will have an opportunity to diagnose BPL interference *before it happens*, by comparing interference patterns with certain parameters of the BPL, such as BPL location coordinates, device multiple access technique, modulation type, carrier spacing and data rate.

AEC knows, and NTIA surely knows as well, that radiation from power lines is frequency dependent. Interference from a BPL system could appear in a narrow frequency band or in spectrum patterns not resembling the original BPL signal properties. In other words, no radio operator could objectively assess the potential for interference using those database parameters. By the same token, the BPL operator could not be *absolved* from suspected interference, when the BPL is not in fact the source, by means of such a database.

AEC believes that, in the majority of cases, the proposed database parameters will not provide sufficient technical reason to objectively and conclusively predict potential *harmful* interference. Instead interference objections will be subjective, especially if there is no mechanism in place to hear and resolve objections based on the database.

The potential for abuse of this mechanism is enormous. Because the results would be subjective, the database could very easily become a tool for unjust harassment from overzealous individuals, including those who may be motivated by broadband competitors. Under no circumstances should the Commission consider the database idea unless it is prepared to administer a fair and objective dispute resolution process.

NTIA claims in Section IV, page 12 of its comments that the database records will also provide parameters useful for the future prediction of increases in radio noise due to ionospheric propagation and aggregation. Yet in its own summary on page ix, NTIA states: "On the basis of worst-case oriented analyses of ionospheric propagation and aggregation of radiated emissions from Access BPL systems, NTIA concludes that hundred of thousands of Access BPL devices conforming to current BPL rules (limits and measurement procedures) would have to be deployed nationally to cause a 1 dB increase

in median radio noise power at any location, globally.…Using NTIA's mandatory power control and use of the 5 dB height correction factor, it would take millions of BPL devices to cause a 1 dB increase in median radio noise."

AEC points out that ionospheric pollution would spread globally and not be confined to the locality of the polluting radiator. Therefore, in order to assess the effect of BPL on ambient radio noise due to ionospheric propagation, BPL data collected throughout the globe would be necessary.

The proposals contained in Section IV of the NTIA comments are extreme and unprecedented measures that could only hurt the industry, without substantially contributing to the reduction or prevention of harmful interference. Such extreme measures could only be appropriate for proven rampart radiators; but, neither the practical experience of AEC and other BPL operators, nor NTIA's own field measurements have shown BPL to be such a radiator.

NTIA's views in support of the database suggestion are not consistent with its own statements made elsewhere in its comments. Specifically:

- Section II, page 4 of the NTIA comments states: "NTIA does not expect Access BPL systems to compound existing risks of interference from radio frequency noise generated by electrical power distribution systems…Instead, to the benefit of radio proponents, strong power line noise emissions likely will be reduced in the process of deploying BPL systems."

- On page 5 of the same section: "… NTIA has measured field strength levels from power line noise that are higher than the limits proposed for BPL radiated

emissions and these existing anomalies pose greater local interference risks than Access BPL."

- In Section V, page 14: "…[H]owever, NTIA's studies do not indicate that systematic interference problems should be expected [from Access BPL systems deployment]."

- Section VI, Part A, page 17 of the NTIA comments: "While field strength can fall and increase with increasing distance well beyond the recommended ten meter measurement distance, the overall peak level consistently occurs at one or more locations within ten meters from the power lines and BPL devices. Secondary local field strength peaks further than ten meters from the power lines and Access BPL devices generally are substantially lower than the overall peak; hence, they will pose substantially less interference risk than arises at locations where field strengths are near the limiting value."

According to NTIA, the BPL measurement procedures will tell us with near certainty that an interference risk will not exist or that it will be reasonably low. Accordingly, additional, non-technical safeguards simply are not necessary.

Reply Comments Regarding the Applicable Equipment Authorization Process

NTIA in Section V of its comments for the first time suggests that BPL devices regulated under Part 15 of the Commissions rules should meet the requirements for

certification, instead of verification, and that each individual BPL operator should be responsible for obtaining the equipment authorization.

NTIA contends that BPL systems pose interference risks among the highest of the various kinds of unlicensed devices and systems. NTIA argues that "…all these responsibilities [compliance testing and elimination of harmful interference] should be aligned and placed on Access BPL operators because they receive the BPL service revenue benefit…" By this rationale, the testing responsibility for *all* Part 15 devices should be borne by those who use them.

The arguments made by NTIA as a justification for this radical proposal contradict its own views on the interference potential of BPL, quoted above. In addition, NTIA's attempted analogy between BPL and the cable television industry, offered to illustrate NTIA's argument for the certification procedure, proves the opposite. As NTIA acknowledges in footnote 22 of its comments, the cable television industry has been plagued by problems of unwanted emissions stemming from faulty connections, unauthorized set-top boxes, poor shielding and improper cable terminations. Yet cable set-top boxes are still subject only to the *manufacturer's* Declaration of Conformity, not the Certification procedure and certainly not certification by cable system operators. The truth is, there is no justification or prior precedent for NTIA's unreasonable proposal.

No reason is given by NTIA why BPL is more harmful than other carrier current systems. Section V states that BPL is new and untried but it does not follow that this is a reason for such overregulation.

The Commission has already considered and rejected NTIA's arguments. In paragraph 44 of the NPRM, the Commission stated: "We propose to retain the Verification procedure for Access BPL. Consistent with the objective that our regulatory requirements keep pace with technology development, we recognize that we must balance administrative burdens and the need to ensure compliance with our rules. We agree with commenting parties such as Phonex Broadband Corporation (Phonex) and UPLC that the authorization procedure for BPL should be the same as for all unintentional radiators, including traditional types of carrier current systems. Low-speed carrier current systems, which for a number of years have been operating inside buildings, have rarely been a source of harmful interference to radio communications, and the use of the verification procedure has been adequate to ensure that such systems comply with the rules."

NTIA stated in Section IV page 8 of its comments, "NTIA believes that BPL operators, as the parties responsible for eliminating harmful interference, will voluntarily implement equipment, organizational elements, and installation and operating practices that prevent interference and facilitate interference mitigation. Market appeal of BPL could quickly evaporate if BPL systems were to endemically cause interference and have to be shut down with operating authorizations swiftly revoked if necessary." Market forces are incentive enough. AEC urges the Commission to retain the Verification procedure for BPL as it originally intended, and not to overburden the industry with unique and unnecessary administrative obligations.

Reply Comments Regarding Other NTIA Recommendations in its Comments

Section VI of NTIA's comments, Measurement Guidelines Part B, *MEASUREMENTS SHOULD FULLY ADDRESS RADIATION FROM BPL DEVICES AND POWER LINES TO WHICH THEY ARE CONNECTED*: This part recommends a comprehensive search for the peak field strength at the one-meter measurement height along key power line segments at the recommended horizontal measurement distance of 10 m. AEC agrees with NTIA comments in the same section that the peaks of the field strength will occur at regular intervals (specifically at ½ of the wavelength).

However, NTIA does not provide additional information to permit judging the merits of this proposal. AEC's main concern with any search procedure for finding the peak field strength along the line is the upper bound of the number of necessary measurements. In several cases, a vast number of measurement points could result.

Several commenters, including Southern Company, Home Plug Power Alliance and Progress Energy, urged the Commission to adopt a measurement procedure that required fewer measurement points along the line. We believe their comments support the alternative proposed in AEC's original comments:

> Testing shall be performed at distances of 0, ¼, ½, ¾, and 1 wavelength down the line from the BPL injection point on the power line. Wavelength spacing shall be based on the mid-band frequency used by the EUT. In addition, if the mid-band frequency exceeds the lowest frequency injected onto the power line by more than a factor of two, testing shall be extended in steps not exceeding the greater between a) 1/8 of the wavelength of the lowest frequency injected, and b) ½ of the wavelength of the mid-band frequency, until the distance of the testing point from the BPL injection point on the power line is ½ or more of the wavelength of the lowest frequency injected.

The 1/8 wavelength measurement step above, proposed by AEC, provides sufficient spatial resolution for the identification of the peak field strength along key segments of the power line. In addition, the proposed guideline sets implicitly an upper bound of measurements not to exceed the number of four. However, AEC believes that if the Commission accepts NTIA's proposal above, it should **explicitly** provide the BPL operator with the freedom of determining the manner by which the search of the peak field strength along the line will proceed, **without** supplying generic distance-measurement steps that could result in an excessive number of measurements.

Part C, *MEASUREMENT HEIGHTS*: AEC finds the comments of this part in close agreement with its own assessment about the field distribution along the vertical dimension. NTIA's proposed 5 dB height correction factor is close to AEC's proposed 3.5 dB. It should be noted, however, that presently the relation between the fields at the heights near the power line conductors and the fields at the heights at other greater distances from the line has not been established experimentally or verified by measurements. Until such relation is established, therefore, AEC urges the Commission to allow the more linear factor of 3.5 dB proposed by AEC.

Part E *USE OF LOOP ANTENNA BELOW 30 MHz*: The comments of this part are in direct contrast with the comments of the NTIA Phase 1 Study report. That report concludes, correctly, that the use of the loop antenna is inappropriate for near field measurements as the ratio between magnetic and electric field is not a constant. This ratio is a constant only in the range of the far fields. The NTIA comments, however, in

direct contrast, propose the use of the loop antenna for measurements below 30 MHz near the power line, claiming that it is possible to derive conversion factors from the actually measured magnetic field to the wanted electric. AEC believes that such development is in vain as the wave impedance in the near field region cannot be defined.

The same paragraph of the NTIA comments mentions that the ratio between the two quantities can vary between 1 to 2000 Ω at various locations along the line. AEC, as it has already stated above, supports the use of the rod antenna, which NTIA also supports for the same reason in its Phase 1 Study report.

Part G *GUIDELINES v. RULES REGARDING MEASUREMENTS*: In this part NTIA proposes to the Commission to embody certain measurement procedures (e.g. measurement height correction factor, and the 3 and 10 m measurement distances) as rules rather than as guidelines as originally stated in the Commission's NPRM. AEC believes that such an action by the Commission would be premature, given the absence of sufficient BPL operating experience as well as small number of BPL emission measurements which could reasonably establish the expected performance of these systems. Retaining the above as guidelines (as the Commission proposed), will facilitate and promote improvement and evolution of measurement methods.

Reply Comments Regarding A New Rule Part for Access BPL

AEC finds the NTIA proposal for including BPL rules under a new rule part to be premature, given that the industry is new and there is no sufficient experience as to the trends and practices that will develop. AEC believes that BPL should remain, at least for

the moment, regulated under the current rule part regulating unintentional radiators and carrier current systems. Perhaps the issue of creating a separate rule part for BPL could be revisited in due time, when sufficient experience is accumulated, which would permit the objective evaluation of the industry.

Reply Comments Regarding Conducted Emissions

AEC notes that there is broad support among commenters for the Commission's proposal to exempt conducted emissions from measurement obligations. AEC reiterates is own support for this exemption.

Conclusion

This docket is about the technical standards and techniques that will allow BPL equipment to be authorized for use in the marketplace without undue concern for interference. NTIA, which performed extensive field testing, has demonstrated that adaptive interference mitigation techniques afford the best protection against harmful interference. In light of NTIA's field studies, the results of several ongoing BPL experiments, and AEC's own theoretical modeling, AEC urges the Commission to confine its regulations to those that relate to the technology, *as it has always done for Part 15 devices*. The Commission should reject well-intentioned but burdensome and costly administrative measures, such as database requirements, certification requirements, and non-manufacturer equipment authorization, that will not provide a significant, marginal improvement over hardware-based interference mitigation safeguards and traditional equipment authorization procedures.